EFFICACY OF TWO SILICONE-HYDROGEL CONTACT LENSES FOR BANDAGE USE AFTER PHOTOREFRACTIVE KERATECTOMY

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1. INTRODUCTION

The aim of the study was to evaluate the efficacy of two silicone hydrogel (SiH) contact lenses, approved for continuous wear for one week, following photorefractive keratectomy (PRK).

2. METHODS

Forty seven patients (22 men and 25 women) with an average age of 29±10 years were enrolled in this prospective, double-masked, comparative, clinical study. All patients underwent bilateral PRK for the correction of myopia (94 eyes), at the Institute of Vision and Optics, University of Crete. Recruitment was performed in a prospective consecutive non-randomized fashion.

Epithelial defect size was assessed using slit lamp biomicroscopy on the third post-operative day and at days 1 to 4 post-operatively. Post-operative examination also included assessment of uncorrected and best-corrected logMAR acuity (Precision Vision, LaSalle, USA) and retinal straylight C-Quant, Oculus Optigerate, Germany) at one month post-operatively.

Epithelial defect size was calculated from the area (A) of the epithelial defect using the following equation (Grentzelos et al., 2009 and Engle et al., 2005):

\[ A = \pi \left(\frac{a+b}{4}\right)^2 \]

where, a and b were the longest and shortest dimensions of the defect, respectively. Figure 1 depicts characteristic images of the cornea of the same eye at different post-operative days. It is evident that the size of epithelial defect is significantly reduced on the third post-operative day.

On average larger areas of epithelial defect were observed with the Lotrafilcon B contact lens, compared to 74.5 % (35/47) of the eyes fitted with the Asmofilcon A lens (Menicon, Nagoya, Japan; 14-day recommended replacement). The lens type fitted in each eye was counterbalanced.

Epithelial defect size was assessed using slit lamp biomicroscopy on the day of surgery and at days 1 to 4 post-operatively. Post-operative examination also included assessment of uncorrected and best-corrected logMAR acuity (Precision Vision, LaSalle, USA) and retinal straylight C-Quant, Oculus Optigerate, Germany) at one month post-operatively.

An important observation concerned the quality of the suture (see Figure 3). At the 3rd post-operative day the 14/35 (29.8%) of re-epithelialised eyes showed irregular suture with Lotrafilcon B, compared to 6/41 (12.8%) eyes with Asmofilcon A lenses (x²=16.9, p<0.001) (see figure 4).

Low amounts of retinal straylight were observed for both lenses (p=0.98), while no statistically significant difference was found in post-operative best-corrected visual acuity (p=0.68).

4. CONCLUSIONS

SiH contact lenses, approved for continuous wear for one week, can be used as an effective bandage after PRK due to the limited time (~3 days) required for achieving complete corneal re-epithelialisation.

Asmofilcon A lenses seem to result in a faster re-epithelialisation and a smoother suture compared to Lotrafilcon B lenses.

References


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